What Does Self-Assessment of Safety Culture Look Like?

Discussion from the
Pantex Plant Perspective

Confirmed to be Unclassified
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    (Derivative Classifier)
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Purpose of the Survey

- Pantex on a journey to become a High Reliability Organization (HRO)
- Understanding our culture provides feedback on our progress in the HRO journey – Initial survey provides a baseline
- Pilot site for safety culture self assessment to support EFCOG (Safety Culture Task Group, 2009) and DOE initiative (Ref. Implementation Plan for DNFSB Recommendation 2011-1, Section 5.2.2)

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What is a HRO?

- End-State Definition: An organization that repeatedly accomplishes its mission while avoiding catastrophic events, despite significant hazards, dynamic tasks, time constraints, and complex technologies

- Process Definition: An organization that
  - Takes a systems approach to performing work
  - Realistically defines the work-as-planned
  - Drives systems and processes to maintain gap between work-as-planned and work-as-done as small as achievable with available resources

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What is an HRO?

HRO Practice #1:
Manage the System, Not the Parts
- Leaders ensure the safety system selected provides safety
- Leaders manage the safety system to reduce variability
- Leaders foster a culture of reliability
- Leaders model organizational learning

HRO Practice #2:
Reduce System Variability
- Deploy the Break-the-Chain framework
- Evaluate operation of the safety system
- Systematically adjust processes

HRO Practice #1
Manage the System, Not the Parts

HRO Practice #2
Reduce Variability in HRO System

HRO Practice #4
Learn &Adapt as an Organization

HRO Practice #3
Foster Strong Culture of Reliability

HRO Practice #3:
Foster a Strong Culture of Reliability
- Enable employees to make conservative decisions
- Ensure proficiency through hands-on training
- Encourage open questioning of, and challenges to, the safety system

HRO Practice #4:
Learn and Adapt as an Organization
- Generate decision-making information
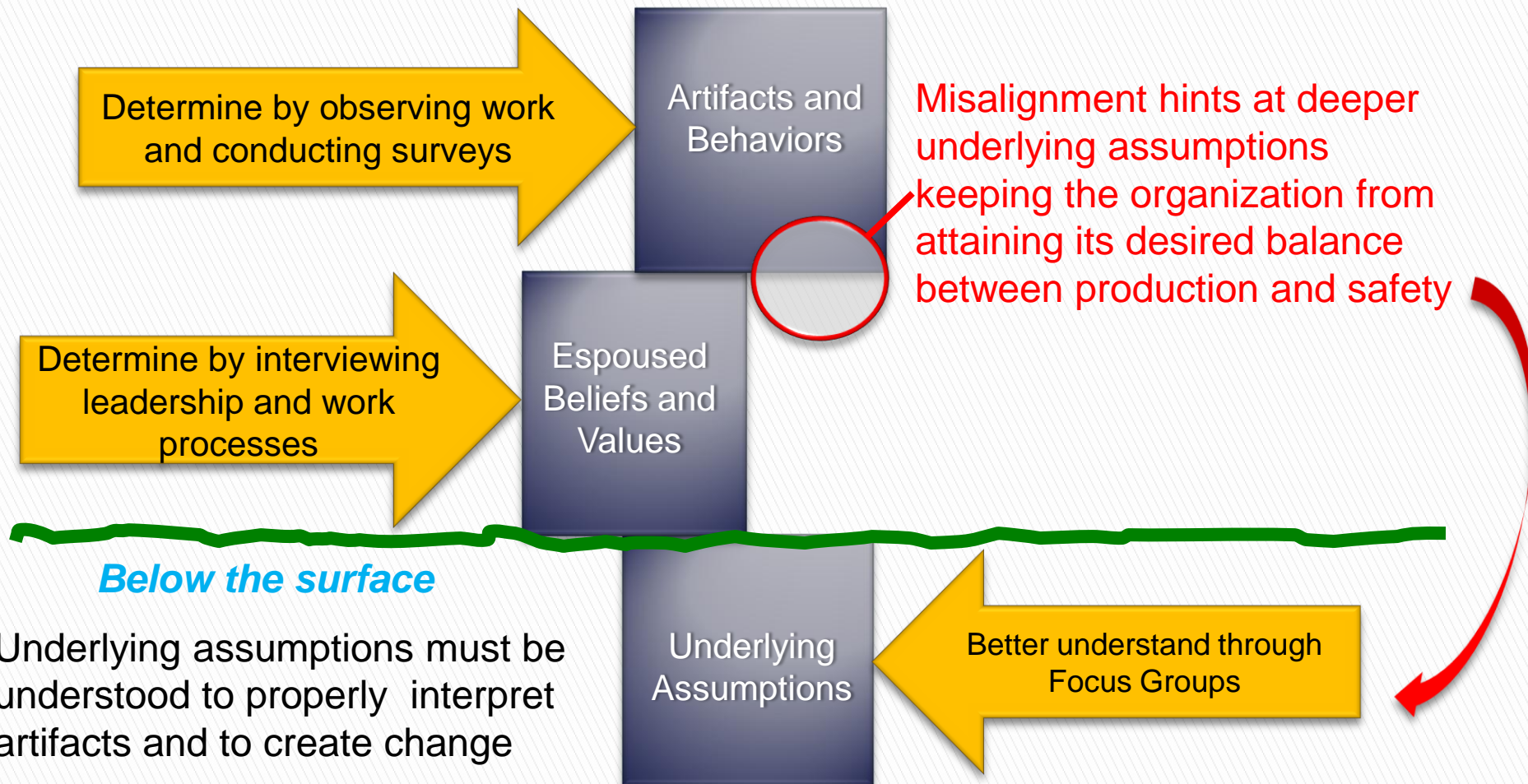- Refine the HRO system: apply a system approach to reduce variability

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Basis for Survey
Assessing Organizational Culture

Determine by observing work and conducting surveys →

Artifacts and Behaviors

Misalignment hints at deeper underlying assumptions keeping the organization from attaining its desired balance between production and safety

Determine by interviewing leadership and work processes →

Espoused Beliefs and Values

Below the surface

Underlying assumptions must be understood to properly interpret artifacts and to create change

Underlying Assumptions

← Better understand through Focus Groups

Schein, Organizational Culture and Leadership, 2004

Initial Survey Design

- Pantex launched project with Texas Tech University (TTU) to design and deploy a customized safety culture assessment
  - Reviewed existing research literature to identify instruments used in previous research on safety culture
  - Learned about Pantex operations based on process observations, document review and feedback
  - Developed survey questions for Pantex
- Pilot survey performed in one functional organization (Explosives Technology) in 2010

Comparison of Survey Design

EFCOG Safety Culture Focus Areas	Pantex HRO Practices	Safety Culture Survey Dimensions – TTU
Leadership	Practice #1: Manage the system, not the parts	Management Commitment to Safety
Employee/Worker Engagement	Practice #3: Foster a strong culture of reliability	Shared Accountability for Safety
Organizational Learning	Practice #4: Learn and adapt as an organization	Learning Processes for Safety
Work Planning & Control using ISM Core Functions*	Practice #2: Reduce system variability	Job Design for Safety

*The area of WP&C was not a focus area, but was added to make picture complete

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Pantex Plant Safety Culture Model (TTU)

Inputs	Process	Outcomes

Management Commitment to Safety	Shared Accountability for Safety	
		Safety Outcomes
Job Design for Safety	Learning Process for Safety	
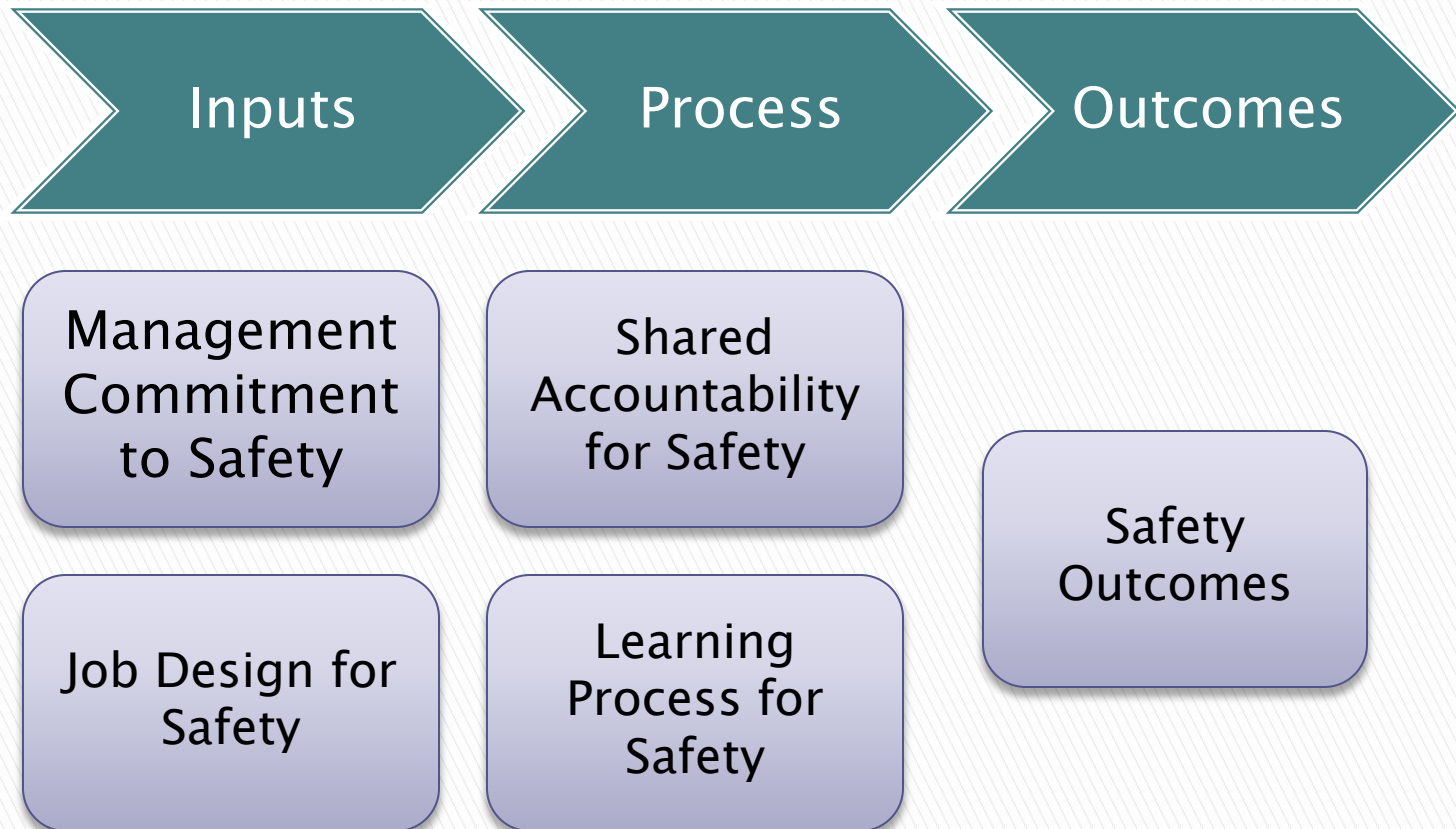
Safety Culture Constructs - Inputs

- Management Commitment to Safety (HRO Practice #1)
  - Senior Management Safety Effectiveness
  - Section Manager Safety Effectiveness
  - Co-Worker Safety Effectiveness
  - Collective Safety Efficacy
  - Sufficiency of Materials, Resources & Time

HRO Practice #1 Manage the System, Not the Parts

HRO Practice #2 Reduce Variability in HRO System

HRO Practice #4 Learn &Adapt as an Organization

HRO Practice #3 Foster Strong Culture of Reliability

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Safety Culture Constructs - Inputs

- **Job Design for Safety (HRO Practice #2)**
  - Task-Oriented Communication
  - Perceived Job Significance
  - Job Procedure Control*
  - Work Environment Quality
  - Task Redundancy*
  - Physical Environment Perceptions
  - Perceived Job Risk*
  - Environmental Effects on Safety
  - Procedural Precision & Training
  - Procedure Standardization Effectiveness
  - Process Standardization Adherence

    *   Score below the mid-point may not indicate an area of concern, depending on job function, etc.

HRO Practice #1 Manage the System, Not the Parts

HRO Practice #2 Reduce Variability in HRO System

HRO Practice #4 Learn &Adapt as an Organization

HRO Practice #3 Foster Strong Culture of Reliability

Safety Culture Constructs - Process

- Shared Accountability for Safety (HRO Practice #3)
  - Employee Safety Ownership
  - Safety Procedure Effectiveness
  - Safety Documentation Accessibility

- Learning Process for Safety (HRO Practice #4)
  - Reactions to Mistakes
  - Problem Solving Methods
  - Operational Contribution to Understanding
  - Section Manager Support
  - Preventative Measures

HRO Practice #1 Manage the System, Not the Parts
HRO Practice #2 Reduce Variability in HRO System
HRO Practice #4 Learn &Adapt as an Organization
HRO Practice #3 Foster Strong Culture of Reliability

Safety Culture Constructs - Outcomes

- Safety Outcomes
  - Safety Officers
  - Overall Safety Effectiveness
  - Overall Perceived Risk*

*   Score below the mid-point may not indicate an area of concern, depending on job function, etc.

Culture Survey Design

- Electronic Survey (with exceptions) on secure third-party server (Vovici) to preserve anonymity
- Total of 180 questions:
  - 167 questions on Inputs and Processes
  - 7 questions on Safety Outcomes
  - 4 questions on demographics
  - 2 free-response comments (one about safety, one about survey)
- Rated on scale of 1 to 6 (1 = Strongly Disagree; 6 = Strongly Agree)
- Estimated time to complete was 20-40 minutes

Current Status

- All surveys administered and completed by division, with draft results tabulated
- Participation was voluntary with ~50% responding in terms of usable surveys
- TTU preparing a plant-wide summary report
- Pantex/HRO Staff are reviewing data in advance of Plant-wide report as part of quality review
- TTU continuously ensures anonymity of participants

What Does It Look Like?

▸ Lots of data – Still looking at the data sets to best understand what they mean

▸ Considering Focus Groups – May request TTU to come back and ask questions in a group forum to better understand the data and responses

▸ Identifying Cultural Strengths First – Believe it is best to work with attributes that are positive and already in place

▸ Results provide a baseline for HRO Journey – Use information to decide where to focus attention

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Next Steps

- Finalize the Plant-wide Report
- Understand Results
- Communicate Results
- Identify Areas for Focus Groups
- Based on the HRO framework, initiate additional actions for areas in need of attention

Things to Consider (Lessons Learned – So Far)

▸ What would we keep?
  ◦ Plant personnel involvement in survey design to understand what results tell us
  ◦ Use external group to ensure anonymity
  ◦ Availability of survey to all respondents

▸ What would we reconsider?
  ◦ Size/length of the survey
  ◦ Usefulness of certain questions/constructs
  ◦ Level of specificity of questions
  ◦ Desirability of comments
  ◦ Use of multiple methods (survey and focus groups, etc.)

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Final Words

- Too soon to make any conclusions
- Struggle with the meaning of the responses and the appropriate corrective measures
- More work to do
- Actions will take consideration and time to implement
- Another survey? In due time to monitor progress?
- Questions?

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